



# Jet corrections meeting

[www-cdf.lbl.gov/~currat/talks/](http://www-cdf.lbl.gov/~currat/talks/)

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LBNL

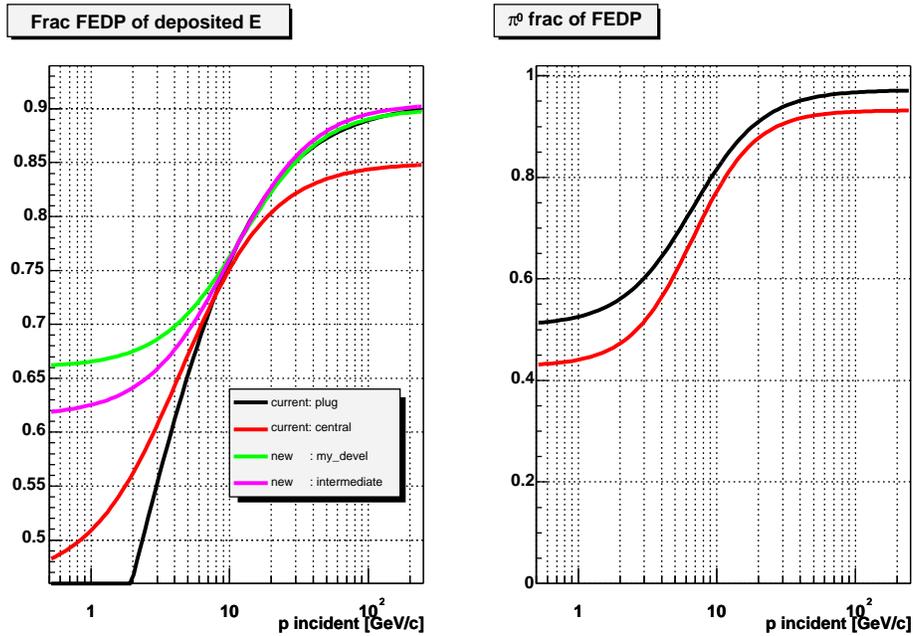
**August 20, 2003**

◆ Progress report



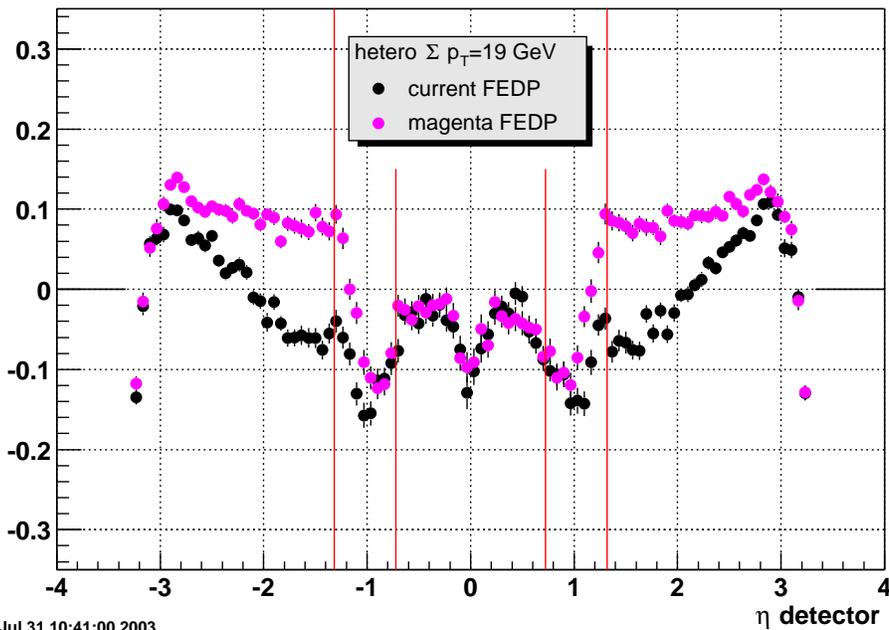
# Non-linearity in the plug

**Reminder:** Gflash tuning in CDF#5886. Plug tuned down to  $E=8$  GeV in W1T8,  $E_T = \sin(\theta(\eta = 1.58)) \times E = 3.2$  GeV. Trying different new options below that...



Wed Jul 30 18:32:05 2003

## Fake jets: balance [R=0.7]



Thu Jul 31 10:41:00 2003



## Changes in the code



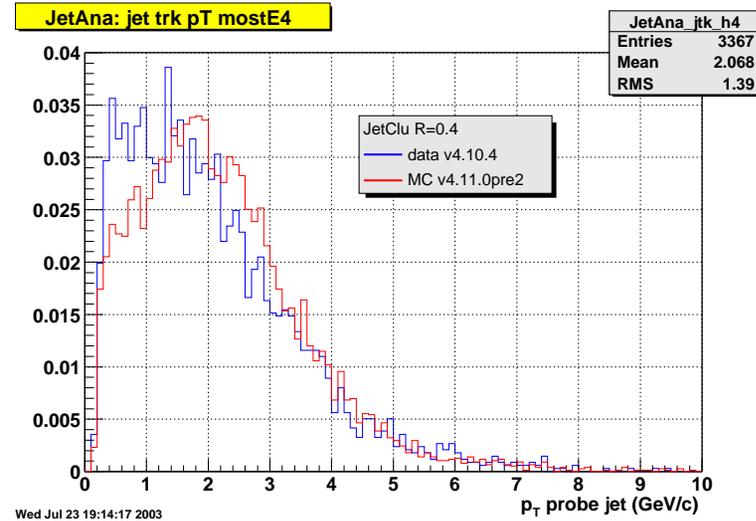
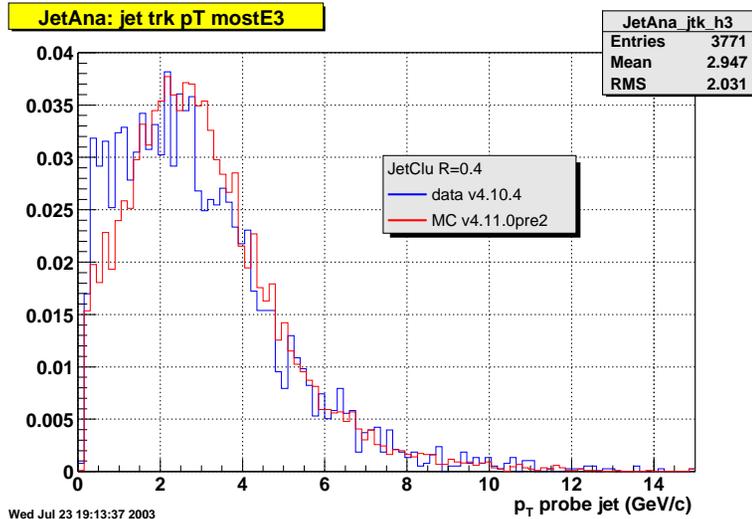
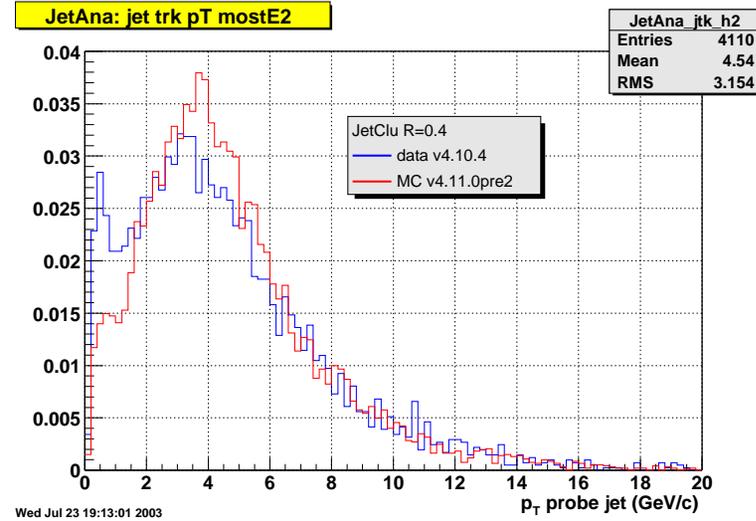
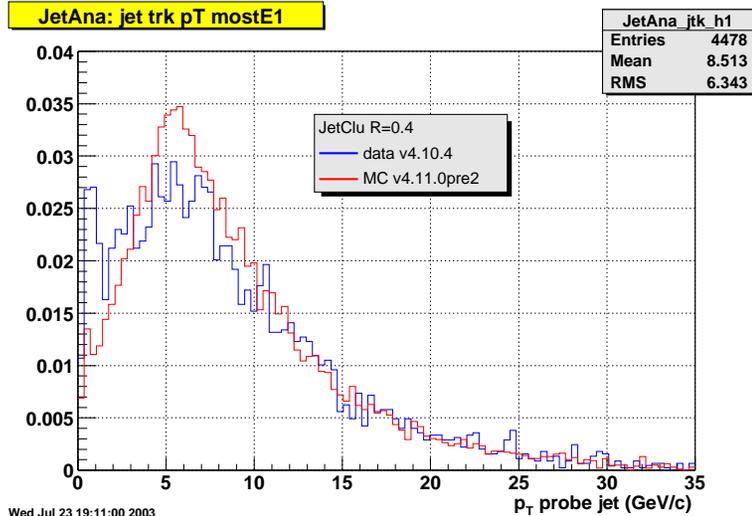
- ❖ Willis working to standardize implementation of the offline LERs... stumbled across oddities in WHA/PHA overlap region
  - incorrect treatment of tower types (PHA and PPR)
  - incorrect treatment of the  $\phi$ -segmentation (WHA=24, plug=48)
- ❖ Affected files: `Calor/src/CalDataMaker.cc` and `GflashSim/GflashSim.cc`
- ❖ **Bounds of tower indices off in `CalorGeometry/src/CalorKey.cc`!!**
- ❖ Changes (partly) available in development → evaluated on top of v 4.11.1 with fake jet gun



# Jets anatomy 102



## Spectrum of first 4 highest $p_T$ -tracks in a jet



👉 New fake jets composition  $p_T = 7 + 4 + 3 + 5 \times 1 = 19$  GeV, 8 particles

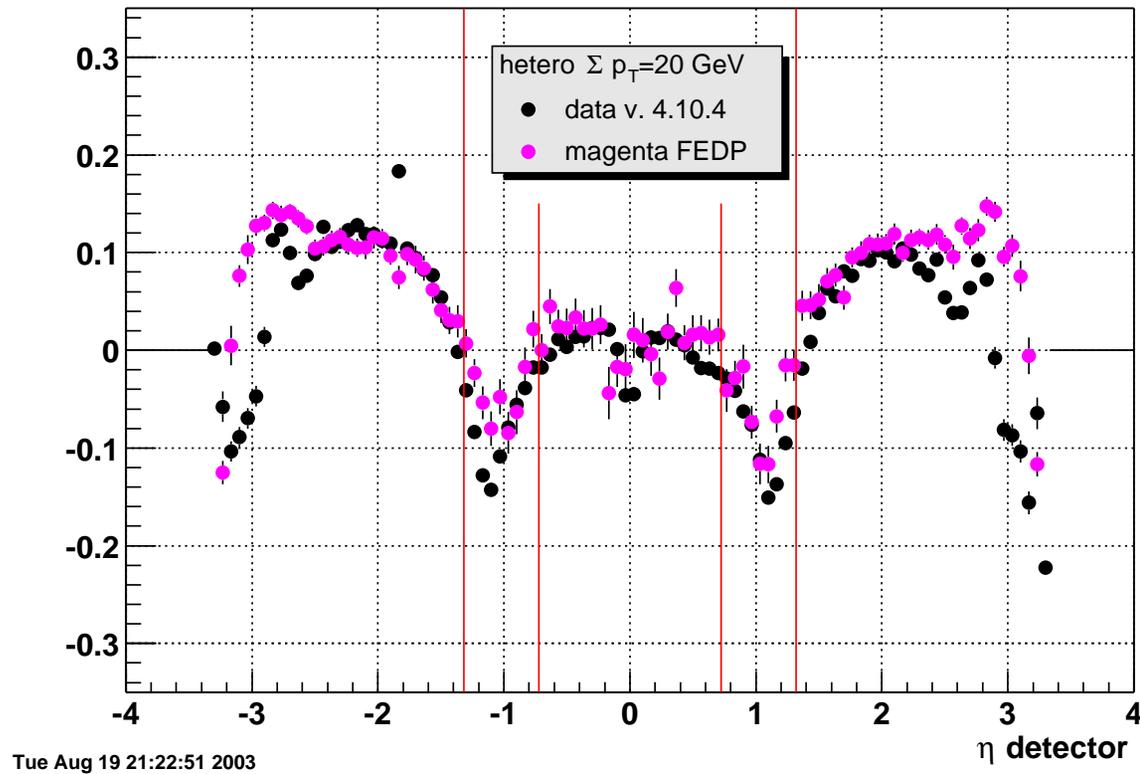


## Dijet balance update



Fake jets with 8 particles  $p_T = 8.5 + 4.5 + 3 + 2 + 4 \times 0.5 = 20 \text{ GeV}/c$  ( $\sigma = 0.22$ ) compared with **data** after fixes (jets in region  $|\eta| > 0.95$  rescaled by  $\times 0.89$ )

**Fake jets: balance [R=0.7]**



- ❖ WHA cracks definitely doing better
- ❖ don't know about  $|\eta| > 2.5$  region?!



## Next series of checks

- ❖ TDR: plug region  $3^\circ < \theta < 10^\circ$  < made out of stainless steel instead of iron (Fe recycled from Run I gas plug, less coverage)  $\Rightarrow$  changing Fe to steel in the plug gives  $\Delta E \sim 1\%$  difference in response (and is there a gap/crack at the boundary by any chance?)
- ❖ Thickness of recently added passive material at COT face plate  $\Rightarrow$  tests w/wo new disks give  $\Delta E \sim 2\%$  difference in response
- ❖ Reminder: significant drift in plug response, especially at high  $\eta$   $\Rightarrow$  stability of plug time dependence correction is OK

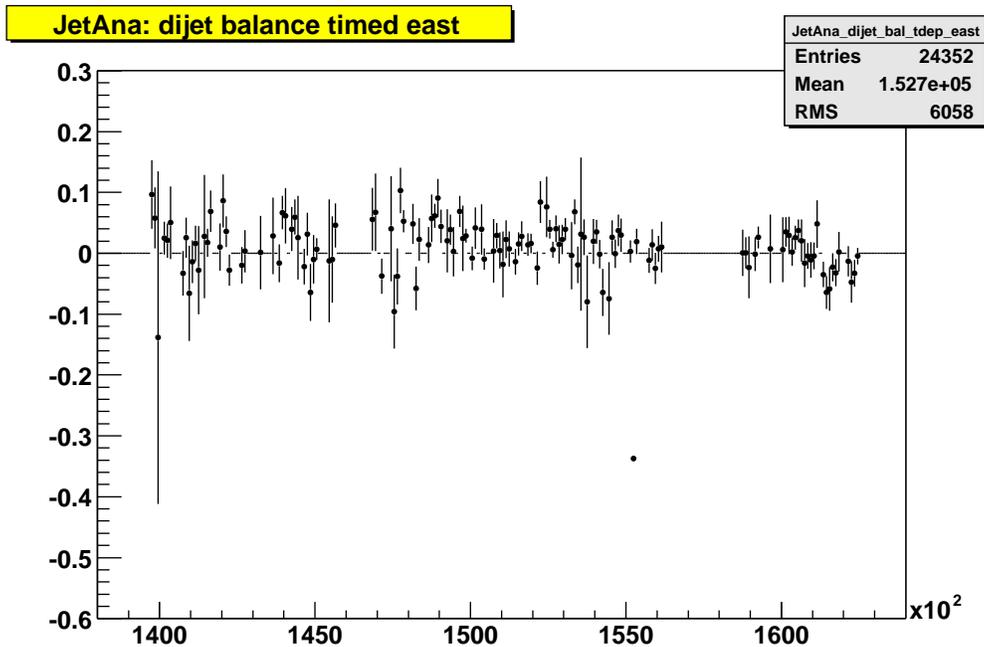
$\Rightarrow$  Region of tower type 6+7 (transition back to segmentation of  $15^\circ$ ). Impossible to probe with tracking. No test beam available in these particular towers. One can conceive to introduce a different tower energy scale in good faith if ever needed.



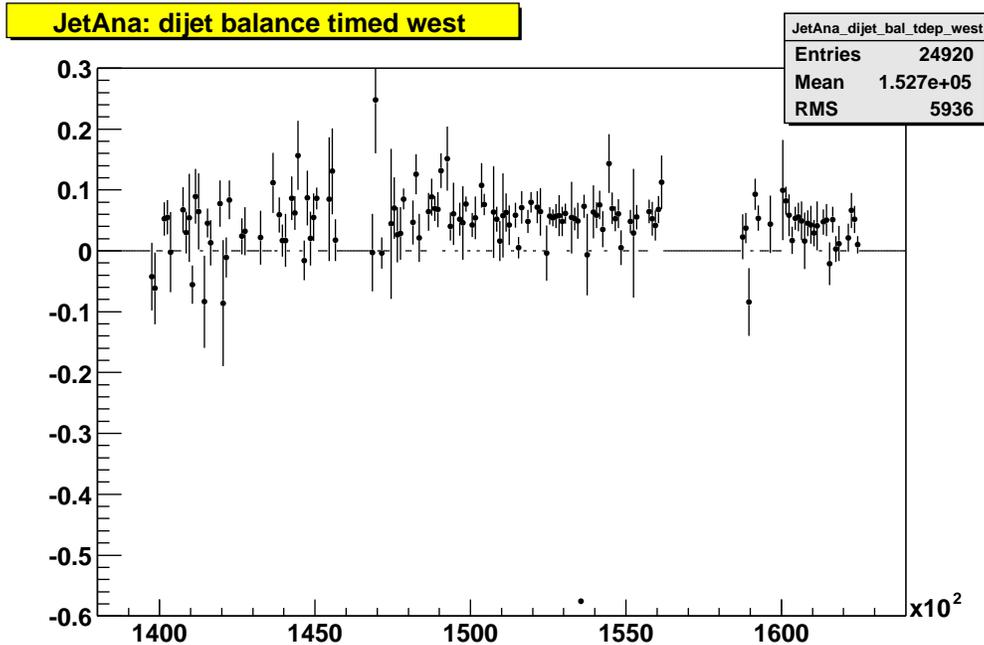
# Plug time dependence



Dijet balance for  $|\eta| > 2.2$  as f(run number)



Wed Aug 13 15:45:09 2003



Wed Aug 13 15:50:08 2003

👉 stable over past 18 months, no significant drift!



## Comments



- ❖ High- $\eta$  region affected by beam splash, need real MC dijet events
- ❖ Request for O(1M) MC dijet events magenta production imminent
- ❖ Gonna submit all necessary changes today